

**WHAT IS CLAIMED IS:**

1. A stepwise scheduling method used in an output-buffered switch system for broadband networks to guarantee quality of service, the switch system having a plurality of flows  $i$  ( $i=1\sim N$ ), each flow  $i$  having an output queue, the output queue having a plurality of windows, each flow  $i$  having a corresponding normalized weight  $w_i$  and a credit  $c_i$ , and using a window index  $d_i$  to point to a window, the method comprising the steps of:

(A) when packet  $P_i$  of flow  $i$  arrives, determining whether the credit  $c_i$  of flow  $i$  is larger than the size of packet  $P_i$  ;

(B) if the credit  $c_i$  of flow  $i$  is smaller than the size of packet  $P_i$ , adding the normalized weight  $w_i$  of flow  $i$  to the credit  $c_i$ , incrementing the window index  $d_i$ , and executing step (A) again;

(C) if the credit  $c_i$  of flow  $i$  is larger than the size of packet  $P_i$ , the packet  $P_i$  is placed into the window pointed by the window index  $d_i$ ; and

(D) subtracting the size of the packet  $P_i$  from the credit  $c_i$ .

2. The stepwise scheduling method as claimed in claim 1, wherein the normalized weight  $w_i$ , credit  $c_i$  and window index  $d_i$  are stored in a table.

3. The stepwise scheduling method as claimed in claim 2, wherein, in step (A), it is determined whether the credit  $c_i$  of flow  $i$  is larger than the size of packet  $P_i$  based on the weight  $w_i$ , window index  $d_i$  and credit  $c_i$  corresponding to the flow  $i$  stored in the table.

4. The stepwise scheduling method as claimed in claim 3, further comprising a step (F) for writing the updated window index  $w_i$  and credit

$c_i$  into the table.

5. The stepwise scheduling method as claimed in claim 4, wherein the packets placed in the windows of the output queue are output sequentially.

5 6. The stepwise scheduling method as claimed in claim 5, wherein, when all packets are pushed out and the window is empty, the table is updated to have initial values.

7. The stepwise scheduling method as claimed in claim 1, wherein the normalized weight of the flow  $i$  is  $w_i = W \times$   
10  $w_i^*/(w_1^* + w_2^* + \dots + w_N^*)$ ,  $w_i^*$  being the weight of flow  $i$  and  $W$  being the size of a window.